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EXAMINER

SINGH, DALZID E

ART UNIT PAPER NUMBER

2633

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,190

Applicant(s)

DECUSATIS ET AL.

Examiner

Dalzid Singh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: In claim 8, line 7, "value," should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 9, applicant recites, "modulating the center wavelength of the optical signal to establish a difference between the center wavelengths of the filter mechanism and the optical signal to represent a data value." As disclosed in the specification and shown in the figures, it is unclear how the difference is established between the center wavelength of the filter mechanism and the optical signal by modulating the center wavelength. As disclosed in the specification and figures, as originally filled, the difference is established by processing the received signal from photodetector. Therefore, based on this, it is unclear how the difference is established by modulating the center of the optical signal.

In claims 4 and 12, applicant recites, "...using the feedback signal to adjust the dither signal." However, as shown in the figures, the dither generator does not receive

any feedback signal. Therefore, it is unclear how the feedback signal adjusts the dither signal. Based on this, claims 4 and 12 are vague and indefinite.

In claim 5, applicant recites, "modulating the optical signal to carry a first set of data, and...modulating the center wavelength of the optical signal to carry a second set of data." As shown in the figures and disclosed in the specification, as originally filed, the first modulation appears to be the modulation by the dither signal and the second modulation is modulation to impose MPLS data signal. Therefore, based on this it is unclear how a first set of data is modulated. The first modulation by the dither signal does not contain any set of data.

In claim 8, applicant recites, "encoding the given data value in the optical signal by establishing the obtained difference between the center wavelengths of the filter mechanism and the optical signal." As disclosed in the specification and shown in the figures, it is unclear how the difference is established between the center wavelength of the filter mechanism and the optical signal by encoding the given data value in the optical signal. As disclosed in the specification and figures, as originally filled, the difference is established by processing the received signal from photodetector. Therefore, based on this, it is unclear how the obtained difference is established by encoding the given data value in the optical signal.

In claims 13 and 15, applicant recites, "generating a difference signal representing the difference between the center wavelengths of the optical signal and the filter mechanism" As disclosed in the specification and shown in the figures, it is unclear how the difference is established between the center wavelength of the optical signal

and the filter mechanism. As disclosed in the specification and figures, as originally filled, the difference is established by processing the received signal from photodetector. Therefore, based on this, it is unclear how the difference is generated representing the difference between the center wavelength of the optical signal and the filter mechanism.

In claims 17 and 19, applicant recites, "modulating the center wavelength of the optical signal to establish a difference between the center wavelengths and a predefined wavelength..." As disclosed in the specification and shown in the figures, it is unclear how the difference is established between the center wavelength of the optical signal by modulating the center wavelength. As disclosed in the specification and figures, as originally filled, the difference is established by processing the received signal from photodetector. Therefore, based on this, it is unclear how the difference is established by modulating the center of the optical signal.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1 and 19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 15-18, 21-22, 31-32 of U.S. Patent No. 6,738,187. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims in the present invention and claims in the patent are similar.

Regarding claims 1 and 9 (as far as understood), both the present invention and the patent discloses:

an optical filter having a passband including a center wavelength;

a modulation system to modulate the center wavelength of the optical signal (in claim 2, the patent discloses mechanism for applying a dither modulation); and,

The patent differ from the claimed invention in that the patent does not specifically disclose a mechanism for generating the an optical signal including the

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center wavelength. However, as discussed in claim 1, the patent discloses generating an amplified output optical signal including a center wavelength, therefore it would have been obvious that there exist a mechanism for generating such optical signal.

6. Claims 1 and 19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 18 and 20 of U.S. Patent No. 6,751,014. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims in the present invention and claims in the patent are similar.

Regarding claims 1 and 9 (as far as understood), both the present invention and the patent discloses:

laser pump signal including center wavelength;

an optical filter having a passband including a center wavelength (see preamble of claim 1);

a modulation system to modulate the center wavelength of the optical signal (in claim 2, the patent discloses mechanism for applying a dither modulation); and,

The patent differs from the claimed invention in that the patent does not specifically disclose generating an optical signal including the center wavelength. However, as discussed in claim 1, the patent discloses generating a laser pump signal including a center wavelength. It would have been obvious that the laser pump signal is an optical signal.

7. Claims 1 and 19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 13, 14, 25, 26, 28 and 29 of U.S. Patent No. 6,597,840. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims in the present invention and claims in the patent are similar.

Regarding claims 1 and 9 (as far as understood), both the present invention and the patent discloses:

mechanism for generating the an optical signal including the center wavelength (see claim 1);

a modulation system to modulate the center wavelength of the optical signal (in claim 2, the patent discloses mechanism for applying a dither modulation); and,

The patent differs from the claimed invention in that the patent does not specifically an optical filter having a passband including a center wavelength. However, in claim 1, the patent discloses grating for providing a selective function including a center wavelength. It is well known that grating passes through or reflects optical signal of a particular wavelength. Therefore, it would have been obvious to consider the grating as a filter mechanism having a passband function.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 1-6 and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epworth et al (US Patent No. 5,777,773).

Regarding claims 1 and 9 (as far as understood), Epworth et al disclose optical frequency control system, as shown in Fig. 5, comprising:

directing the optical signal (optical signal is generated by laser (1)) through a filter mechanism (3) having a passband function (it would have been obvious that the filter has passband function); and

modulating the optical signal (the external modulator (2) modulates the optical signal).

Epworth et al disclose optical control system as discussed above and differs from the claimed invention in that Epworth et al do not specifically disclose that the optical signal include a center wavelength. However, it is well known that optical signal include center wavelength or part of the signal where the signal is at its highest point.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide optical signal with center wavelength. One of ordinary skill in the art would have been motivated to select the center wavelength of the optical signal in order to provide maximum power level of the signal.

Regarding claims 2 and 10, in view of the rejection above, Epworth et al further show generating a feedback signal representing the difference (the feedback signal or error signal is generated and transmitted to the control means); and using said feedback signal in a feedback loop to modulate the center wavelength of the optical signal to

establish said difference between said center wavelengths (the error signal is used to control modulation of the laser; see col. 7, lines 5-36).

Regarding claims 3, and 11, as shown in Fig. 5, Epworth et al show:
generating a dither signal (dither generator (6) generates dither signal) and means for applying the dither signal to modulate the center wavelength of the optical signal (the dither signal is used to modulated the laser; see col. 7, lines 5-7).

Regarding claims 4 and 12 (as far as understood), as shown in Fig. 5, Epworth et al shows a feedback signal (error signal) used to adjust the laser. Since the dither signal is used to modulate the laser, therefore by adjusting the laser the dither signal is also altered. For example, varying intensity of the bias signal of the laser will alter the intensity of the dither signal as well.

Regarding claim 5 (as far as understood) and in view of claim 1, as shown in Fig. 5, Epworth et al show the step of modulating the optical signal to carry a first set of data (modulation by dither signal), and wherein the step of modulating the center wavelength of the optical signal includes the step of modulating the center wavelength of the optical signal to carry a second set of data (modulation by external modulator).

Regarding claim 6, as discussed above, Epworth et al disclose modulating with a second set of data and differ from the claimed invention in that Epworth et al do not specifically disclose that the second set of data are information for controlling the transmission of optical signals within the network. However, it would have been obvious to an artisan of ordinary skill in the art to provide the second set of data for controlling transmission of optical signal within the network. It is well known that due to aging and

temperature fluctuation, laser diodes experience change in its operating parameters. Therefore, one of ordinary skill in the art would have been motivated to control transmission of optical signal in order to provide optical signal within a desired range of operating parameters.

Regarding claims 13 and 15 (as far as understood), Epworth et al disclose optical frequency control system, as shown in Fig. 5, comprising:

- receiving the optical signal (the optical signal is received by element (4));
- passing the optical signal through a filter mechanism having a passband function (element (4) includes a filter element);
- generating a difference signal representing the optical signal (the difference signal is the error signal); and
- converting said difference signal to a data value (it would have been obvious that the difference is converted to a data value in order to calculate how much control is required of the laser diode).

Epworth et al disclose optical control system as discussed above and differs from the claimed invention in that Epworth et al do not specifically disclose that the optical signal include a center wavelength. However, it is well known that optical signal include center wavelength or part of the signal where the signal is at its highest point. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide optical signal with center wavelength. One of ordinary skill in the art would have been motivated to select the center wavelength of the optical signal in order to provide maximum power level of the signal.

Regarding claims 14 and 16, as shown in Fig. 5, Epworth et al show:

the dither signal is used to encode data in the optical signal (dither modulation) and, the circuit includes a subcircuit for processing the dither signal with the difference signal to obtain the processed difference signal (the dither signal is phase shifted and received by comparator circuit (5) which compares and generates a processed difference signal) and converting the processed difference signal to the data value (it would have been obvious that the processed difference signal is converted to a data value in order to calculate how much control is required of the laser diode).

Regarding claims 17 and 19 (as far as understood), Epworth et al disclose optical frequency control system, as shown in Fig. 5, comprising:

modulating the optical signal (modulation is performed by either dither modulation or external modulation);

transmitting the optical signal to a receiving device (receiving device is element (4); and

using the receiving device to process the optical signal to identify the encoded data (the receiving device is coupled to the comparator to process the encoded data; processing the encoded data could also identify the encoded data).

Epworth et al disclose optical control system as discussed above and differs from the claimed invention in that Epworth et al do not specifically disclose that the optical signal includes a center wavelength. However, it is well known that optical signals include center wavelength or part of the signal where the signal is at its highest point.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to provide optical signal with center wavelength. One of ordinary skill in the art would have been motivated to select the center wavelength of the optical signal in order to provide maximum power level of the signal.

Regarding claims 18 and 20, in view of the rejection above, as shown in Fig. 5, Epworth et al show:

a first circuit (5) to generate a difference signal (error signal) representing the difference between the optical signal and a defined value; and,

a second circuit to convert the difference signal to a data value (a second circuit (7) to convert the difference to a data value).

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Epworth et al (US Patent No. 5,777,773) in view of Chang et al (US Patent No. 6,674,558).

Regarding claim 7, as discussed above, Epworth et al disclose optical transmission system comprising of modulating means and differ from the claimed invention in that Epworth et al do not specifically disclose that the data are encoded according to one or more protocols selected from the group comprising: Multi-Protocol Label Switching (MPLS), Tag Switching, Digital Wrapper, Digital Encapsulation, or related protocols. However, encoding using such protocol is well known. Chang et al is cited to show such well known concept. In col. 4, lines 9-16, Chang et al teach the use of tag switching (since applicant claims "one or more protocols", for examination purpose, only one protocol is selected which is tag switching). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made

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to encode the optical signal of Epworth et al with tag switching as taught by Chang et al. One of ordinary skill in the art would have been motivated to do such in order to provide information to the optical signal such as for routing.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sasai et al (US Patent No. 6,459,519) is cited to show optical transmitter-receiver.

Akiyama et al (US Patent No. 6,661,974) is cited to show optical transmitter and optical transmission system.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272--3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS
November 9, 2004

m. R. Sedighian
M. R. SEDIGHIAN
PRIMARY EXAMINER